

CLAIMS

1. Compositions intended to be applied to surfaces of freshly poured mortar and/or concrete mixes, before the start of setting, in order to prevent the evaporation of water needed for them to set and harden, are characterized in that, for the purpose of making them synergistic with regard to water retention, they are composed, in the form of aqueous emulsions, of:
- a) at least one petroleum-derived or synthetic paraffin wax containing, as a mixture, saturated and unsaturated aliphatic hydrocarbons of general formulae  $C_nH_{2n+2}$  and  $C_nH_{2n}$  for which  $n$  is at least equal to 30 and the melting point of which is between  $40^\circ\text{C}$  and  $75^\circ\text{C}$ ;
  - b) at least one linear and/or cyclic hydrocarbon oil, of aliphatic and/or naphthenic origin, which are hydrocarbon chains, by themselves or as a mixture, of general formulae  $C_nH_{2n+2}$  and  $C_nH_{2n}$  for which  $n$  is less than 30, in a liquid state at room temperature; and/or
  - c) at least one oil formed from at least one ester resulting from the condensation reaction between a saturated and/or unsaturated fatty acid and a monohydric, dihydric or trihydric alcohol.
2. The compositions as claimed in claim 1, characterized in that the paraffin wax is chosen from the group consisting of alkanes and/or alkenes, by themselves or as a mixture, which are petroleum-derived or synthetic saturated and/or unsaturated hydrocarbons of general formulae  $C_nH_{2n+2}$  and  $C_nH_{2n}$  in which  $n$  preferably takes a value between  $30 \leq n \leq 120$ .
3. The compositions as claimed in either of claims 1 and 2, characterized in that the paraffin wax has a melting point preferably between  $50^\circ\text{C}$  and  $70^\circ\text{C}$ .
4. The compositions as claimed in any one of claims 1 to 3, characterized in that the paraffin wax has a

density of between 0.85 and 0.95 and preferably between 0.88 and 0.92.

5. The compositions as claimed in any one of claims 1 to 4, characterized in that the hydrocarbon oil is of general formulae  $C_nH_{2n+2}$  and/or  $C_nH_{2n}$  in which  $n$  preferably takes a value of between 10 and 25.

6. The compositions as claimed in any one of claims 1 to 5, characterized in that the hydrocarbon oil is chosen from those having a kinematic viscosity of between 5 and 500 mm<sup>2</sup>/s.

7. The compositions as claimed in any one of claims 1 to 6, characterized in that the hydrocarbon oil is chosen from those having a density of between 0.83 and 0.97.

8. The compositions as claimed in any one of claims 1 to 7, characterized in that the fatty acids used in the preparation of the oil formed from at least one ester are chosen from the group of C<sub>8</sub> to C<sub>24</sub> fatty acids.

9. The compositions as claimed in claim 8, characterized in that the fatty acids are chosen from the group consisting of C<sub>8</sub> to C<sub>24</sub> fatty acids, such as, for example, caprylic, capric, lauric, myristic, palmitic, stearic, arachidic, behenic, lignoceric, palmitoleic, oleic, gadaleic, erucic, linoleic, linolenic, and isolinolenic acids.

10. The compositions as claimed in any one of claims 1 to 9, characterized in that the monohydric, dihydric or trihydric alcohols used in the preparation of the oil formed from at least one ester are chosen from the group consisting of C<sub>2</sub> to C<sub>20</sub> alkanols and alkenols.

11. The compositions as claimed in claim 10, characterized in that the monohydric alcohol is chosen

from the group consisting of ethanol, propanol, butanol, pentanol, stearic alcohol and oleic alcohol; the dihydric alcohol is chosen from the group consisting of propanediol, butanediol, pentanediol, 5 hexanediol, heptanediol, octanediol, nonanediol, decanediol, undecanediol and dodecanediol and other dihydroxyalkanes or alkenes; and the trihydric alcohol is chosen from the group consisting of glycerol, butanetriol, pentanetriol, hexanetriol, heptanetriol, 10 octanetriol, nonanetriol, decanetriol, undecanetriol and dodecanetriol and other trihydroxyalkanes or alkenes.

12. The compositions as claimed in any one of claims 1 15 to 11, characterized in that:

- component (a), which is formed from at least one paraffin wax, is present in said compositions in an amount of 2% to 90% by weight, preferably 5% to 60% by weight and very preferably 5% to 40% by weight;
- 20       - component (b), which is formed from at least one hydrocarbon oil, is present in said compositions in an amount of 5% to 90% by weight, preferably 8% to 40% by weight and very preferably 9% to 30% by weight; and/or
- 25       - component (c), which is formed from at least one oil composed of at least one ester, is present in said compositions in an amount of 5% to 90% by weight, preferably 10% to 50% by weight and very preferably 15% to 40% by weight; and
- 30       - water: Q.S. to 100% by weight.

13. The compositions as claimed in any one of claims 1 35 to 12, characterized in that the weight ratio of dry active matter of the sum of the oils and of the paraffin wax that are present is at least 0.25, is preferably at least 0.63 and is very preferably between 0.64 and 9.

14. The compositions as claimed in any one of claims 1

to 13, characterized in that said compositions, in emulsion form, have a dry matter content of between 10% by weight and 60% by weight and preferably between 30% by weight and 50% by weight.

5

15. A method of preparing the compositions as defined in any one of claims 1 to 14, characterized in that it comprises the successive steps of introducing the various components into a preparation region subjected  
10 to stirring, the contents of which may be heated and/or cooled, these steps being:

i) the introduction, in the calculated amount, of water, needed to create the emulsion, optionally followed by the introduction of an emulsifier into said region, this first mixing being  
15 carried out with vigorous stirring for the time needed to obtain a homogeneous medium;

ii) the introduction, in the calculated amounts, of the mixture of the oils of component (b) and/or (c), forming a second mixture, which is  
20 subjected to the same vigorous stirring for the time needed to obtain the first "oil-in-water" emulsion;

iii) the introduction, in the calculated amount and with gentle stirring, of the paraffin wax  
25 into the second mixture:

- preheated to a temperature sufficient to cause the wax to melt and to pass into the emulsion state when said wax is introduced in the form of a very fine powder;
- 30 - at room temperature when the wax is introduced in the form of an aqueous emulsion; and

with the gentle stirring maintained for the prolonged time needed to form the emulsion, possibly with cooling  
35 of the emulsion; and then

iv) subjection of the emulsion resulting from the second mixture converted into an aqueous emulsion to gentle stirring for a prolonged time in order to homogenize the aqueous emulsion containing all the

components that has been formed.

16. The application of the compositions as defined in any one of claims 1 to 14 for the protection of freshly poured mortar and/or concrete surfaces from water evaporation by spraying said compositions as aqueous emulsions onto said surfaces with a useful weight deposited per unit area of between 50 g/m<sup>2</sup> and 150 g/m<sup>2</sup> in order to achieve complete protection.